

TWO WEST INDIAN SPECIES OF *CONODERUS* OCCURRING
IN FLORIDA (COLEOPTERA: ELATERIDAE)

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ABSTRACT

Conoderus bifoveatus (Palisot de Beauvois) and *C. rufidens* (Fabricius) are reported from Florida for the first time, although some specimens were collected there as early as 1875. The pertinent features of these species are tabulated and figured and the species are compared with the native *lividus* (DeGeer).

For several years I have found specimens of a species of *Conoderus*, usually confused with the common and widespread *lividus* (DeGeer), in collections from Florida. More recently I discovered that these specimens actually represented 2 closely allied species. Both species are known in Florida only from the southeastern coastal areas, therefore it seems very likely that they are West Indian in origin.

The West Indian as well as the other neotropical species of *Conoderus* are poorly known. Without revisionary studies, it is practically impossible to be sure of the correct identities of the species. Obviously it is beyond the scope of this paper to make such a comprehensive study. About 35 years ago, J. M. Valentine started a revision of the Conoderini. His notes and illustration are on file at the Systematic Entomology Laboratory, USDA, Washington, D. C. Although I have not seen these, I did borrow the specimens used by Valentine, which included both West Indian and Floridian material of the 2 species in question. He considered the West Indian specimens to be either *Conoderus bifoveatus* (Palisot de Beauvois) or *C. rufidens* (Fabricius) and he assigned manuscript names to both of the Floridian species. My studies do not indicate any material differences between the West Indian and Floridian specimens, but perhaps a comprehensive study will indicate differences or even a change in the names used here.

As far as I can determine, neither *bifoveatus* nor *rufidens* has been reported from the United States, although Fleutiaux (1947:118) did include the United States in the distribution of *rufidens*. Adults of both of these species were taken by Hubbard and Schwarz, *rufidens* at Capron in 1875 and *bifoveatus* at Lake Worth and at Biscayne in 1887, as evidenced by specimens in the United States National Museum of Natural History. These specimens were included in the material studied by Valentine. Schwarz (1878) apparently confused these specimens with those of the common and widespread *lividus*, however, he did make the statement (p. 353): ". . . the ocean and lagoon beaches of the eastern shore, especially at Capron, are rich in peculiar forms, and as the Gulf Stream here flows only six or eight miles off the coast, it is quite possible that many of these species are direct importations brought in the West Indian seeds and drift-wood constantly being thrown upon this low and sandy coast."

At least 2 neotropical species of *Conoderus* are now considered as pests

in the southern states: the Gulf wireworm, *C. amplicollis* (Gyllenhal), and the southern potato wireworm, *C. falli* (Lane). Both are widespread from South Carolina to California (see Stone 1975, for the California records). Specimens of *bifoveatus* and *rufidens* were first taken in Florida in 1875 and 1887 respectively and nearly a century later their distribution is still restricted to the coastal areas from Indian River County to Key West. Therefore it seems doubtful that either will develop into a pest species as did *amplicollis* and *falli*.

Specimens of the common *lividus* are readily distinguishable from those of either *bifoveatus* or *rufidens* by the characters of the mesosternal cavity. In *lividus* the sides of the cavity (Fig. 10) gradually slope between the middle coxae and the posterior edge is on the same level as the adjoining metasternum. In the other 2 species the sides of the cavity (Fig. 11, 12) abruptly slope between the middle coxae. In *bifoveatus* the posterior edge is rounded anteriorly (oblique ventral view) and noticeably raised above the adjoining metasternum, but in *rufidens* the posterior edge is not rounded and is only slightly raised.

Less obvious differences between *lividus* and the other 2 species are that in *lividus* the prothorax has the sides more converging near the anterior margin and it is less convex transversely, also the punctation is conspicuously of 2 sizes (not to be confused with the double punctation such as found in *amplicollis*); this latter character is frequently more noticeable on the prosternum and proepisternum. In specimens of *bifoveatus* and *rufidens* the prothorax has the sides more parallel and is more convex transversely (more like in *parallelus* (LeConte)) and the punctures are nearly uniform in size.

The male genitalia (Fig. 1) of *lividus* are very distinct because of the asymmetry of the bases of the lateral lobes on the dorsal side; the other 2 species have symmetrical genitalia (Fig. 2, 3).

The external differences between specimens of *bifoveatus* and *rufidens* are much more subtle. Rather than formal description, I have tabulated the average differences between them. There is some overlap in the external characters, therefore the only reliable characters are found on the male genitalia.

Conoderus lividus (DeGeer)

This species was originally described from specimens from Pennsylvania. It is commonly found throughout eastern United States from southern New York to central Texas and Kansas. It is not known from Canada except for 1 specimen taken at Fossambeault (Portneuf County), Quebec (47° 22' N, 71° 19' W). Although considerably removed from the usual distribution, I have no reason to doubt the collector's data.

Conoderus bifoveatus (Palisot de Beauvois)

This species was originally described from specimens from Saint Dominique. Blackwelder (1944) recorded it from various islands in the West Indies. *Conoderus bifoveatus* appears to be more common than *rufidens* and, as far as I know, it is restricted to the West Indies and southern Florida.

I have seen 84 specimens from the following localities in Florida: Bahia Honda Key; Big Pine Key; Dry Tortugas; Flamingo, Monroe Co.;

Fort Lauderdale; Homestead; Jupiter; Key Biscayne; Key Largo; Key West; Lake Worth; Miami; Miami Beach; Paradise Key, near Everglades Nat. Pk. Hdqts.; Plantation Key; Riviera Beach; Stock Island; Summerland Key.

Specimens of *bifoveatus* have been taken along the southeastern coast of Florida from Jupiter (extreme northeast corner of Palm Beach Co.) to Flamingo (southeast corner of Monroe Co.) and to Key West and the Dry Tortugas.

There are 2 specimens of *bifoveatus* in the United States National Museum of Natural History labelled "Coll Hubbard and Schwarz, Lake Worth, Fla., 6/5 [June 5]" and "Coll Hubbard and Schwarz, Biscayne, Fla., 5/11 [May 11]." In a letter to Mrs. Slossen (see Sherman 1929:273), Schwarz

Table of differences between *C. bifoveatus* & *C. rufidens*

| <i>bifoveatus</i> | <i>rufidens</i> |
|--|---|
| Size smaller, 9.5-13.5mm (males); 10.5-14.5mm (females). | Size larger, 13.0-14.0mm (males); 13.5-17.5mm (females). |
| Body less robust. | Body more robust. |
| Mesosternal cavity (Fig. 14) with sides abruptly sloping between middle coxae, produced and rounded (side view) near posterior margin; cavity narrower, minimum width equal to width of 1st antennal segment. | Mesosternal cavity (Fig. 15) with sides abruptly sloping between middle coxae, but not as produced near posterior margin; cavity wider, minimum width greater than width of 1st antennal segment. |
| Prosternal spine bent slightly inwardly, definitely curved between front coxae (side view); spine not sharply pointed at apex. | Prosternal spine nearly in line with rest of prosternum (side view); spine quite sharply pointed at apex. |
| Antenna longer, extending about 1 segment beyond apex of hind angle of pronotum (males) or nearly to apex (females); 3rd segment slightly but not too obviously longer than 2nd (Fig. 5). | Antenna shorter, extending to apex of hind angle of pronotum (males) or failing to reach apex by about 2 segments (females); 3rd segment intermediate in length between 2nd and 4th, very obviously longer than 2nd (Fig. 6). |
| Tarsal lobe (Fig. 8) less than half length of 5th segment; about 2 times wider than 5th segment. | Tarsal lobe (Fig. 9) more than half length of 5th segment; about 3 times wider than 5th segment. |
| Prothorax with hind angle more slender. | Prothorax with hind angle stouter. |
| Pubescence not as prominent. | Pubescence more prominent. |
| Male genitalia (Fig. 2) shorter and more robust; median lobe wider, gradually tapering to apex; lateral lobe with inner margin straight, outer margin sinuate, apex very blunt, and with spines concentrated nearer to apex. | Male genitalia (Fig. 3) longer and not as robust; median lobe narrow, sides sinuate; lateral lobe with apical part curved inwards, apex rounded and with spines extending a considerable distance from apex. |

noted that he collected at Lake Worth in 1887; Howard et al. (1928:165) noted that Schwarz first collected at Key West and Biscayne Bay also in 1887. Neither of these reports mention that Hubbard was on this trip, yet his name is on the labels. These specimens represent the earliest known records for *bifoveatus* from Florida.



Fig. 1-15, *Conoderus* spp. 1, 4, 7, 10, 13, *lividus*; 2, 5, 8, 11, 14, *bifoveatus*; 3, 6, 9, 12, 15, *rufidens*. 1-3, male genitalia, dorsal view; 4-6, antenna; 7-9, tarsus; 10-12, prosternal spine and mesosternal cavity, oblique ventral view; 13-15, prosternal spine and mesosternal cavity, ventral view.

Conoderus rufidens (Fabricius)

This species was described from specimen(s) taken by Smidt from "America meridionalis." According to Papavero (1971:21) Smidt "visited, besides several West Indian islands, certain places on the South American mainland, such as Essequibo and Demerara in the present British Guiana; therefore, all of the South American species cited as having been collected by Smidt can with certainty be considered as coming from the vicinity of the named localities." Blackwelder (1944) listed *rufidens* from Brazil and Guadeloupe. Fleutiaux (1947:118) recorded *rufidens* from "Guadeloupe, Désirade, Etats-Unis, Cuba, Sainte-Dominique, Mexique, Amérique méridionale." I am unaware of why he listed the United States among the other neotropical localities. I have also seen specimens from Palisadoes and Duncans in Jamaica. The species is probably fairly widespread throughout the Caribbean coastal regions.

I have seen 13 specimens from the following localities in Florida: Bahia Honda Key; Big Pine Key; Capron (near Vero Beach); Key Largo; Key West; Miami; Miami Beach; Palm Beach. These localities extend along the coast from Capron (near Vero Beach) to Key West.

Hubbard and Schwarz collected a male at Capron on 15 April. According to Schwarz (1878:353) he and Hubbard were at Fort Capron from 26 March to 28 April 1875. This is the earliest known specimen of *rufidens* from Florida.

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